large, and there were but few instances, as compared with previous years, of the pernicious practice of reading papers by title only—a practice which, if pushed to its logical conclusion, would result in the destruction of the meetings.

The discussions were kept well in hand, wandering but little from the subject, and being, though frequently brilliant, notably brief. There was in them almost an entire absence of any display of feeling, except an occasional expression of kindly regards between opponents whose differences did not extend beyond the debate; in fact, the cordiality of the meeting was one of its prominent features.

The newspaper press sent correspondents from distant cities—New York, Boston, and Chicago being well represented. The *New York Tribune* announced that its reports would be re-published in an extra, and determined to make that extra cover, with at least a fair extract, every communication read and accepted at the meeting, and the discussions elicited. The practical difficulties in the way of such an undertaking are considerable. All the sub-sections of the Association carry on their proceedings in separate rooms simultaneously. Many of the communications are technical, abstruse, and difficult to report, and have not been reduced to writing; it being the custom of some authors to delay preparation of MSS. for the official report till some months after the close of the meeting. Notwithstanding these obstacles and the expense involved in overcoming them, the extra was brought out with all the completeness proposed; thus anticipating the usual official publication by almost a year. It is a sheet of eight pages, and gives also an illustrated series of letters upon Deep Sea Dredging, as practised by the United States Commission of Fish and Fisheries, the whole containing as much reading-matter as would make a large duodecimo volume. The extra is sold for ten cents, this price including postage.

NOTES

SIR SAMUEL and Lady Baker arrived in London on Thursday evening last. The young African, a lad of about fifteen or sixteen years of age, in whom Lady Baker is said to take much interest, accompanied the party. Both Sir Samuel and Lady Baker looked well, and seemed in excellent spirits.

FOR the Biological Fellowship examination at Magdalen College, Oxford, there are five candidates, of which we are surprised to hear that three are graduates of the University of Cambridge. The election takes place on Saturday next.

MR. EDWARD BAGNALL POULTON, from Mr. Watson's School, Reading, has been elected to an open Physical Science Scholarship of 80*l*. per annum, in Jesus College, Oxford.

MISS POGSON, daughter of the Government Astronomer at Madras, has been appointed Assistant Astronomer.

THE American aëronaut, Mr. Samuel A. King, intends during September to make an extended balloon voyage from Buffalo, New York. For this purpose he is building a large balloon to replace the "Mammoth," which was destroyed by the recent great fire in Boston. It is Mr. King's purpose to make the longest overland voyage, if circumstances favour, ever yet accomplished. It is no part of his plan to go out over the ocean, nor to explore the sea, but he expects to be able to settle something about the upper currents when he comes down. His voyage is undertaken wholly in the interest of science, and, in view of the extraordinary degree of attention now being drawn to the subject of meteorology, the results will be regarded as of much more than ordinary importance. From a communication made by Mr. King in 1871 to the Washington Philosophical Society, it appeared that out of 170 aërial voyages made by him during the past twenty-five years, about twenty-five per cent. showed that the currents of the atmosphere were moving to the north-eastward; a second twenty-five per cent. gave westerly currents; and a third gave north-westerly currents. The remaining forty voyages were about equally distributed among northerly, southerly, and easterly currents. Mr. King's experience, therefore, agrees with that of most European aeronauts, who have repeatedly testified that there is no constant westerly current of air prevailing at any altitude above the earth's surface which they have been able to reach in their balloons.

CANADA is doing its part toward the exploration of the Great West. Besides the surveying parties out on the route of the Pacific Railroad, it has special parties in the field in connection with the Geological Survey and the Boundary Commission. Mr. Selwyn, F.G.S., Director of the Survey, and Mr. R. Bell, F.G.S., are at work on the great regions watered by the North Saskatchewan, and Mr. Richardson on the other side of the Rocky Mountains in British Columbia. Mr. G. M. Dawson, Associate of the School of Mines, Geologist of the Boundary Commission, has just completed a survey of the Lake of the Woods and its neighbourhood, and is now exploring the plains westward of Pembina. All these parties are provided with the means of making collections in the botany and zoology of the regions explored.

MR. J. A. HARVIE BROWN has sent us a reprint of an article by him which appeared in the *Scottish Naturalist* for July, advocating the establishment of a British Naturalist's Agency, on the model of the "American Naturalist's Agency," established at Salem, Mass. U.S. The American Agency has flourished and brought forth abundant and good fruit, and in an incredibly short space of time has become the acknowledged medium for the sale of the proceedings of all the learned societies in America, and through which advertisers on all natural history subjects make known their wants. The main purpose of the Agency is to facilitate the circulation of papers and pamphlets on Natural History, which, from the want of such an Agency, many who wish to possess them find it difficult to obtain, and which are often not even known beyond a narrow local circle. The Agency also undertake to publish new and republish old standard works in Natural History, and perform several other eminently useful offices which can only be sufficiently performed by some such central organisation. The very existence of such an Agency would create a demand for scientific knowledge. Such an Agency in this country would undoubtedly prove a great boon to naturalists, provided it were ably conducted, and fully acknowledged and supported by the leading scientific societies. Scientific circles in time, we believe, would be enlarged, and not be confined to the metropolis, or nearly so. There are plenty of good men out of London, Edinburgh, Glasgow, and the large towns who have no opportunities of reading, being removed from the principal scientific libraries. Not one individual, nor indeed any one society, could set such an undertaking afloat, but if all the leading societies would jointly discuss its merits and demerits, and at length bring it carefully and repeatedly before the notice of the British Association, there is every likelihood that it would become a complete success. To arrive at this first step it is necessary to ventilate the suggestion, and this cannot be better done than by bringing it before the notice of the local societies, and asking each to assist in bringing it finally before a higher court. Parties interested and desirous of seeing such a scheme successful may communicate with Dr. F. Buchanan White, editor of *Scottish Naturalist*, Perth, or with John Harvie Brown, Dunipace House, Falkirk.

ON Monday last a meeting was held at the Mansion House with the view of promoting technical education in the City. The meeting was immediately held in connection with the distribution of prizes by the Turners' Company, for the best specimens of workmanship in the turning of articles in ivory and stone. It is creditable to this Company that it has by this means been endeavouring to promote technical education for some years past, and if all the other City Companies took the trouble to follow the Turners' example, and encourage the introduction into the various trades and handicrafts with which they are connected of a scientific method of workmanship founded upon scientific knowledge of material and on sound scientific theory, we believe they would be doing eminent service that would be fruitful of the best results to the trade and commerce and manufactures of the kingdom.

MR. T. W. BURR writes us that he has, since 1853, been in the habit of using a sidereal dial similar to that described by Captain Mayne, in NATURE, vol. viii. p. 366.

THE death of Prof. John Lewis Russell is announced as having taken place at Salem, U.S., on the 7th of June, in the sixty-fifth year of his age. Prof. Russell was well known as an ardent student of botany, and especially in the department of New England cryptogams, in which he was a recognised authority. He took much interest in the scientific societies of Salem, having been connected more or less with their foundation and administration during the active years of his life.

PROF. AGASSIZ has recently lost one of his most valuable assistants in the death of Dr. G. A. Maack, on the 6th of August last, in the thirty-third year of his age. He was connected with the Cambridge Museum for several years, during which time he was detailed by his chief to act as geologist of the Darien Isthmus exploring party, under Commander Selfridge, and also prosecuted similar researches in Brazil and elsewhere in South America. He was specially charged with the osteological collection of the Cambridge Museum, which he managed with great ability.

THE death is announced of Mr. George Ormerod, of Sedbury Park, Gloucestershire, F.R.S., F.S.A., D.C.L., &c., a well-known antiquary. He was eighty-seven years of age.

THE *Journal of Botany* records the death of Dr. J. Lindsay Stewart, late Conservator of forests in the Punjaub, who had rendered great service to the cause of forest administration in India, by the commencement of the large and now flourishing plantations in the plains of the Punjaub, and who was also a copious writer on Indian botany.

"CONTRIBUTIONS to our knowledge of the Meteorology of the Antarctic Regions," published by the Meteorological Committee, will be of value both to meteorologists and to future Antarctic navigators. The work has been executed by Mr. R. Strachan, and the materials which form the paper have been extracted from the Meteorological Registers kept in the Antarctic Regions, on board H.M.S. *Erebus* and *Terror*, during the months December 1840—March 1841, December 1841—March 1842, December 1842—March 1843, and on board H.M. sloop *Pagoda* during January–March 1845.

AS a result of the inquiry into the recent typhoid epidemic, we are glad to see that the Dairy Reform Company have secured the co-operation of Prof. Corfield, M.D., Prof. Voelcker, Ph.D., and Prof. Wanklyn, to carry out the precautions which have been adopted. A medical and veterinary examination of the employés and stock on each farm is made every week, and reports are forwarded to the Company's chief office in Orchard Street, where they are open to the inspection of customers from 10 A.M. to 4 P.M., on week days. Orders of admission to all their establishments have been given to the medical officers of health for the following districts:—St. James's, Marylebone, Kensington, St. George's, Paddington, Chelsea, and St. Pancras.

WITH reference to our note in last week's number concerning the *Leeds Daily News*, we are glad to be able to say that the *Leeds Mercury* and the *Yorkshire Post and Leeds Intelligencer* also report the transactions of the Leeds Naturalists' Field Club.

MESSRS. CHURCHILL have in the press and will publish during the ensuing season the following works of interest to scientific men:—"On Food, Physiologically, Dietetically, and Therapeutically considered," by F. W. Pavy, M.D., F.R.S.; a third and enlarged edition of Dr. Lionel Beale's "Protoplasm, Dissentient Demonstrative, and Speculative," with 16 plates; a second edition of "The Thanatophidia of India," by J. Fayrer, M.D., C.S.I.; a new illustrated work on "Medicinal Plants,' by Robert Bentley, F.L.S., and Henry Trimen, M.B., F.L.S. This work will include full botanical descriptions and an account of the properties and uses of the principal plants employed in medicine, especial attention being paid to those which are officinal in the British and United States Pharmacopœias. The plants which supply food and substances required by the sick and convalescent will be also included. Each species will be illustrated by a coloured plate drawn from nature. This work will be published in monthly parts, of which we may expect the first very shortly. A translation by Arthur E. J. Barker, of Frey's "Manual of the Histology and Histo-Chemistry of Man," a treatise on the elements of structure and composition of the human body; the book will be largely illustrated with engravings on wood, and specially revised by the author. "The Microscope and its Revelations," by Dr. W. B. Carpenter, F.R.S.; a new edition with upwards of 500 engravings." "Experimental Investigations of the Action of Medicines;" being a handbook of Practical Pharmacology, with engravings, by T. Lauder Brunton, M.D., one of the lecturers at St. Bartholomew's Hospital; "The Student's Guide to Zoology," with engravings on wood, by Andrew Wilson, Lecturer on Zoology at Edinburgh and author of "Elements of Zoology;" "On Long, Short, and Weak Sight, and their Treatment by the Scientific use of Spectacles," by J. Soelberg Wells, F.R.C.S., fourth edition, with engravings.

MESSRS. BLACKWOOD will shortly publish, "Economic Geology, or Geology in its relation to the Arts and Manufactures," by David Page, LL.D.; and an "Advanced Text-Book of Botany," for the use of Students, by Dr. Robert Brown, F.R.G.S., with numerous Illustrations.

MESSRS. STRAHAN & Co. announce, as nearly ready, "The Great Ice Age and its Relation to the Antiquity of Man," by James Geikie, F.R.S.E., of H.M. Geological Survey. This work will be copiously illustrated.

THE third session of the Newcastle College of Science commenced on Tuesday, presided over by the Dean of Durham. Prof. Herschel delivered an address. The necessity for shortly providing more accommodation was considered, and it was understood that an effort was about to be made to raise funds for a new college. The very rev. chairman also mentioned that a College of Agriculture was about to be founded in Central Northumberland in connection with the University of Durham.

THE annual distribution of prizes to the successful competitors in the Guildford Science and Art classes, awarded by the Government Department of Science and Art, took place on the evening of October 1, at the Town Hall. In addition to the Guildford prizes those won by the students of St. John's, Woking, were also distributed, as well as the Night Art Class of the Guildfold Working Men's Institute. The number of students has continued steadily to increase upon former years, 62 having attended the classes during the last winter session. Of these, 35 came up for examination in May, and 23 passed. Several of these obtained very advanced success in more than one subject, so that the total number of successful candidates in the seven subjects taught amounts this year to 49, including four outside candidates, leaving an increase of 13 from last year. Mr. Ethelbert Dowlen, one of the pupils, has been awarded the "Queen's Silver Medal" in botany, and besides numerous other prizes and certificates, he also obtained the "Queen's Gold Medal" for geology at St. John's College, Woking. Altogether these classes seem to have been highly successful, and we hope they will continue to be increasingly so. The classes will be re-opened for instruction on Tuesday, 27th inst., and will be continued every Monday and Wednesday evening for Physical Geography, and on Tuesdays and Fridays, from 6 to 9 P.M., in the other subjects. A class will be held on Saturdays for ladies, in Botany, at a convenient time, commencing from the 11th inst. at 11 A.M. Proposed Subjects :—1, Mathematics (1st, 2nd, and 3rd stage), or theoretic mechanics ; 2, sound, light, and heat ; 3, magnetism and electricity ; 4, chemistry, inorganic ; 5, animal physiology ; 6, elementary botany ; 7, biology ; 8, physical geography. The fees are very moderate.

THE volume of Artizans' Reports upon the Vienna Exhibition, published by the Society for the Promotion of Scientific Industry, Manchester, will be published about the 20th of this month. There are thirty-six reports, which are said to be of a very high class character.

WE are glad to see, from the Report of the Chester Society of Natural Science, that that Society, which has concluded its second year, continues to increase in prosperity so far as numbers are concerned—the number of members being now 454. Among these are not a few working members ; and the secretary gives excellent advice in counselling each member to devote himself to a special subject, as thus only can the interest of the Society and the advance of science be best promoted. During the past year two societies of natural science have been founded in the neighbourhood of Chester—one at Wrexham, the other at Whitechurch. The Chester Society does its work by means of field excursions, general lectures, and sectional meetings.

THE forthcoming number of Petermann's *Mittheilungen* will contain a detailed account of Captain Hall's *Polaris* Arctic expedition, with its scientific results. It will be accompanied by a carefully constructed map showing the course of the *Polaris* from the 80th degree northwards, her course southward from Aug. 15 to Oct. 15, 1872, the course along which the floe containing the nineteen persons drifted after they were separated from the ship on the night of Oct. 15, 1872, until they were picked up off the coast of Labrador six months afterwards, the distance drifted each day, along with the state of the weather, and the places where seals, &c. were obtained, being indicated ; and lastly, the course taken by the men who were picked up in Melville Bay last June.

SHORTLY before his death the late Colonel J. W. Foster completed the manuscript of a work upon the prehistoric races of the United States, which has just made its appearance from the press of S. C. Griggs and Co., of Chicago. This contains an excellent summary of the present state of our knowledge of the aborigines of North America, as illustrated by the remains found in mounds, shell heaps, and ancient mines, as well as by their crania.

THE City of London College, Leadenhall Street, to judge from the programme we have received, offers excellent opportunities to young men engaged during the day for obtaining a good education, literary and scientific, and for intellectual improvement in various ways.

THE *Times of India* says that a scientific geographical survey of native Sikkim is in contemplation by the authorities.

THE *Geological Magazine* announces the death of Prof. Dr. Kemp of Darmstadt, a distinguished zoologist and palæontologist, whose name is well known in connection with the discovery of the *Dinotherium*.

HERR SCHLOENBACH, proprietor of certain salt works at Lieberhall, in Hanover, has instituted a foundation of 12,000 florins, the interest of which is to be devoted to assist geologists who may undertake journeys of exploration beyond the Austro-Hungarian empire. This is intended as a memorial tribute to his son, a young German geologist of much promise, recently deceased.

THE additions to the Zoological Society's Gardens during the last week include an Arctic Fox (*Canis lagopus*) and an Iceland Gull (*Larus leucopterus*), European, presented by Mr. B. L. Smith ; a Black-handed Spider-monkey (*Ateles melanochir*) from South America, presented by Mr. B. Went ; an African Civet Cat (*Viverra civetta*), presented by Lady Cust ; a Macaque Monkey (*Macacus cynomolgus*) from Africa, presented by Capt. Denison ; a Raccoon (*Procyon lotor*) from North America, and a Vulpine Phalanger (*Phalangista vulpina*) from Australia, presented by Miss Breach.

THE BRITISH ASSOCIATION

SECTIONAL PROCEEDINGS

SECTION A.—MATHEMATICS

On the Introduction of the Decimal Point into Arithmetic, by J. W. L. Glaisher, B.A.

The following is an extract from Peacock's excellent History of Arithmetic, in the "Encyclopædia Metropolitana," which forms the stanndard (not to say the only) work on the subject. Speaking of Stevinus's "Arithmétique," Peacock writes : "We find no traces, however, of decimal arithmetic in this work, and the first notice of *decimal*, properly so called, is to be found in a short tract, which is put at the end of his 'Arithmétique,' in the collection of his works by Albert Girard, entitled 'La Disme.' It was first published in Flemish, about the year 1590, and afterwards translated into barbarous French by Simon of Bruges. . . . Whatever advantages, however, this admirable invention, combined as it still was with the addition of the exponents, possessed above the ordinary methods of calculation in the case of abstract or concrete fractions, it does not appear that they were readily perceived or adopted by his contemporaries. . . . The last and final improvement in this *Decimal Arithmetic*, of assimilating the notation of integers and *decimal* fractions, by placing a *point* or *comma* between them, and omitting the exponents altogether, is unquestionably due to the illustrious Napier, and is not one of the least of the many precious benefits which he conferred upon the science of calculation. No notice whatever is taken of them in the 'Mirifici Logarithmorum Canonis Descriptio,' nor in its accompanying tables, which was published in 1614. In a short abstract, however, of the theory of these logarithms, with a short table of the logarithms of natural numbers, which was published by Wright, 1616, we find a few examples of decimals expressed with reference to the decimal point ; but they are first distinctly noticed in the 'Rabdologia,' which was published in 1617. In an 'Admonitio pro decimali Arithmetica,' he mentions in terms of the highest praise the invention of Stevinus, and explains his notation ; and without noticing his own simplification of it, he exhibits it in the following example, in which it is required to divide 861094 by 432. . . . The quotient is 1993,273, or $1993,2'7''3'''$, the form under which he afterwards writes it, in partial conformity with the practice of Stevinus. The same form is adopted in an example of abbreviated multiplication, which subsequently occurs. . . . The preceding statement will sufficiently explain the reason why no notice is taken of *decimals* in the elaborate explanations which are given by Napier, Briggs, and Kepler, of the theory and construction of logarithms ; and indeed we find no mention of them in any English author between 1619 and 1631. In that year the 'Logarithmicall Arith-